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# Consider the Lilies.

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## AN ADDRESS

DELIVERED AT THE OPENING OF THE

COURSE OF LECTURES IN PHYSIOLOGY

IN THE

VICTORIA

UNIVERSITY OF MANCHESTER.

BY

**WILLIAM STIRLING, M.D., D.Sc., LL.D.,**

*Professor of Physiology and Histology, Dean of the Medical Faculty  
of the University of Manchester.*

OCTOBER 5th, 1910.



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OCTOBER 5th, 1910.

Dedicated to

HARRY JAMES HITCHINS.

One who is the Embodiment of Courtesy and Urbanity  
and other Lovable Qualities.

His appreciative knowledge of Art,

His wide and intimate acquaintance with Literature

And his Love of Science,

Have

Helped. Encouraged, and Inspired

W. S.

On many happy occasions.

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Consider the Lilies how they grow. Christ himself said, they toil not, neither do they spin, and that even Solomon in all his glory was not arrayed like one of these. I would have you note that the first word is consider—not observe—and that it is said that lilies toil not. That does not mean that they do not work.

The Lilies' types of beauty and delicacy are symbols of modesty and purity. The Greeks placed crowns of Lilies upon the heads of their brides as emblems of purity and abundance. These classical flowers were also regarded with equal admiration by the Romans.

The Lilies are not only most industrious, but they are most thrifty, for they store up in their underground bulbs a reserve of nutriment sufficient for the initial growth of the next year. Each plant appears "to work hard with solemn forethought all its life."

## ANNUNCIATION AND LILIES IN ART.

In pictures of the Annunciation, Lilies are always a prominent feature, whether the Virgin be crowned, handsomely clad in rich brocade, and enthroned under gorgeous canopies, as in pictures by the older artists such as Fra Angelico, del Sarto, and many others; or represented in humbler guise as in the famous picture of Dante Rossetti, "*Eccè Ancilla Domini!*" words uttered by Mary in submission to her great destiny. The room with its

pure white walls and floor is flooded with a soft morning light. Mary's couch is almost entirely white. A small blue curtain shades the face of the sleeper, while an embroidery frame with an unfinished lily on a bright red ground stands at the foot of the couch. To the left is the Archangel Gabriel with a Lily in his hand, the whole picture, though its drawing and perspective are not flawless, exhibits what has been called the "spiritual simplicity" of Rossetti.

### THE WATER LILY.

A Chinese author, writing in the XIth century, thus sets forth his admiration of the Water Lily:—

"How stainless it rises from its slimy bed! How modestly it reposes on the clear pool—an emblem of purity and truth! Symmetrically perfect, its subtle perfume is wafted far and wide; while there it rests in spotless state, something to be regarded reverently from a distance, and not to be profaned by familiar approach."

### SYMBOLISM.

Perhaps I can best interest you if, at the beginning, I try to link up some of the facts of plant life with the symbolism of Nature as portrayed by the imagination of poets and philosophers.

In considering the Lilies merely as Flowers we might well begin with the words of Henry Ward Beecher—

"Flowers are the sweetest things God ever made and forgot to put a soul into."

When we turn to the FRUITS of the Earth, Liebig said, a cornfield represents God's battalions against hunger.

How exquisitely fine, truthful and picturesque is the saying of James Russell Lowell anent the golden grains of Ruskin's "fairy Forests we call Fields." These grains Lowell calls

"Four months sunshine bound in sheaves."

You remember Keat's oft quoted lines,

"A thing of beauty is a joy for ever,  
Its loveliness increases."

### COLOUR.

"Wherever men are noble they love bright colour: and wherever they can live healthily, bright colour is given them in Sky, Sea, Flowers, and Living Creatures!"

Ruskin "on Poppies." (Proserpina).

## GARDENS.

Ralph Waldo Emerson sang right cheerfully,

“ A garden is a lovesome thing. God wot!  
 Rose Plot,  
 Fringed Pool,  
 Ferned Grot,  
 The veriest school of peace.  
 All my hurts  
 My garden spade can heal.  
 A wild rose, a rock loving columbine,  
 Salve my worst wounds.”

Longfellow gives expression to a similar thought—

“ If thou would'st read a lesson that will keep  
 Thy heart from fainting, and thy soul from sleep,  
 Go to the woods and hills. No tears  
 Dim the sweet look that Nature wears.”

To Solomon: “ A garden enclosed is my sister, my spouse . . .  
 A fountain of gardens, a well of living waters, and streams from  
 Lebanon.

“ Awake, O north wind, and come thou south: blow upon my  
 garden, that the spices thereof may flow out.”

A passage that suggested to Burne-Jones the “ *Sponsa di Libano* ” picture, now in the Liverpool Art Gallery. Lilies grow by the stream on whose bank walks the bride of Lebanon. In the distance behind are forest trees, while the winds responding to her double call—Awake and Come—appear in the form of women with their garments swirling in fantastic yet graceful folds around their limbs.

“ Gardens were before Gardeners, and but some hours after the earth,” as sayeth Sir Thomas Browne in “ *The Garden of Cyrus* ”—while “ Chirurgery finds its whole Art, in that one passage concerning the Rib of Adam.”

Francis Bacon, in his Discourse on “ *Gardens*,” opens with the following words. “ God Almighty first planted a Garden: and indeed it is the purest of humane pleasures. It is the greatest refreshment to the Spirits of Man: without which Buildings and Palaces are but gross Handyworks. And a Man shall ever see, that when Ages grow to Civility and Elegancy, Men come to build stately, sooner than to garden finely: as if Gardening were the Greater Perfection. I do hold it, in the Royal Ordering of Gardens, there ought to be Gardens for all the Months in the Year, in which, severally, things of beauty may be then in Season.”

The gentle Evelyn in his "*Sylva*" says that verdant and fragrant Flowers, Trees, and Perennial Plants are the most natural and instructive Hieroglyphics of our expected Resurrection and Immortality (chap. xxxv.), while of Gardens he says: "Our blessed Saviour chose the Garden sometimes for his oratory, and dying, for the place of his Sepulchre."

There is a word-picture of another Garden—"The Garden of Sleep," by Clement Scott.

"On the grass of the cliff, at the edge of the steep,  
God planted a garden, a garden of sleep!  
'Neath the blue of the sky,—in the green of the corn,—  
It is there that the regal poppies are born!  
Brief days of desire,—and long dreams of delight,—  
They are mine when my poppy land cometh in sight."

### HANGING GARDENS.

Did not Nebuchadnezzar—who raised Babylon to be the first city of the world and who almost rebuilt the "Royal City," situated on the eastern bank of the Euphrates—now partly represented by a tumulus called "Kasr"—cause to be constructed an artificial mountain on which he planted the famous Suspended or "Hanging Gardens" to recall to the mind of his Queen Amytis—a daughter of Cyzates, a Median by birth—the picturesque aspect of her own country, thus erecting for her a substitute for the Hills of Media.

Voltaire in "*The Princess of Babylon*" gives the following account of the wonderful city and gardens of old Belus:—

"We know that his palace and park, situated some parasangs from Babylon, stretched between the Euphrates and the Tigris, which bathed these enchanted banks. His vast house, with a frontage of three thousand paces, towered to the clouds. The platform was girt with a white marble balustrade fifty feet in height, which bore colossal statues of all the kings and all the great men of the empire. This platform, formed of two rows of bricks covered with a thick coating of lead from one extremity to the other, was loaded with twelve feet of earth, and on this earth had been raised forests of olive-trees, orange-trees, lemon-trees, palms, cloves, cocoa-trees, and cinnamon-trees, which formed alleys impenetrable to the sun's rays.

"The waters of the Euphrates, cast up by means of pumps into a hundred columns, flowed into these gardens filling huge marble basins, and then, relapsing into other channels, went to form in the park cascades six thousand feet broad, and a hundred thousand fountains, whose height could scarcely be perceived: they then returned to the Euphrates, of which they were part."



## SNAIL AND ROSE.

Have you read the story of "*The Snail and the Rosebush*"? The SNAIL—retiring into his slimy house—said, "I am going into myself, and shall remain there. The world is nothing to me."

The Rosebush said, "I blossomed in gladness, for I could not do otherwise. The sun was so warm, the air so refreshing. I drank of the clear dew, and the heavy rain. *I breathed, I lived!* There came up from the ground a strength to me; there came a strength *from above*. I experienced a degree of pleasure, always new, always great, and I was obliged to blossom. It was life, I could not do otherwise.

Omar, in the Rubāiyât, says—

"Look to the blowing Rose about us—'Lo  
Laughing,' she says, 'into the world I blow,  
At once the silken tassel of my Purse  
Tear, and its Treasure on the Garden throw.'"

And in two succeeding quatrains he says—

"I sometimes think that never blows so red  
The rose as where some buried Cæsar bled.  
That every Hyacinth the Garden wears  
Dropt in her lap from some once lovely Head.

And this reviving Herb whose tender Green  
Fledges the River-Lip on which we lean—  
Ah! lean upon it lightly! for who knows  
From what once lovely Lip it springs unseen."

## ORATION OF THE ROSE.

Thomas Fuller, discoursing on the flowers in his *Randevouz of Flowers and Herbs*—what he calls his *Tempe of Tempe*—causes the Rose to stand forth and make an oration to this effect:—

"I have the precedency of all Flowers, confirmed unto me under the *Patent* of a double Sence, Sight, Smell. What more curious *Colours*, how do all Diers *blush*, when they behold my *blushing* as conscious to themselves that their *Art* cannot imitate that tincture, which *Nature* hath stamped upon me. *Smell*, it is not lusciously *offensive*, but comforteth with a delight, and delighteth with the comfort thereof: Yea, when *Dead*, I am more *Sovereign* than *Living*: What *Cordials* are made of my *Syrups*? How many corrupted Lungs (those *Fans of Nature*) sore wasted with consumption that they seem utterly unable

any longer to cool the heat of the *Heart*, with their *ventilation*, are with Conserves made of my stamped *Leaves*, restored to their former soundnesse againe."

## EVOLUTION OF PLANT LIFE.

The Geologists tell us that there was a time in the history of the earth when it was destitute of life. The first forms in which life appeared on the earth were forms capable of feeding on inorganic matter. From these simplest forms the Botanists trace the evolution of the vegetable kingdom until we reach the flowering plants, which include not only the lilies of the field and all lowly flowering plants, but also those mighty monarchs of the forest, whose AGE is measured not by a paltry three score years and ten, but by centuries. *They* are the great builders raising their architectural edifices far above the ground, true builders whose days are as the days of a people.

## PLANTS NO SOUL, NO MIND.

Although plants live, grow, and evolve, something more is required in the highest conception of life. At best they 'vegetate,' as it is said some human beings do. The vegetable kingdom with all its wonderful achievements never manifests those phenomena we call mind. The highest evolution is to be found not in the physical, but in the *psychical*.

Still, it is a pleasant philosophy, is that of Wordsworth —

"And 'tis my faith that every flower  
Enjoys the air it breathes."

"Man himself is "not wholly brain, magnetic mockeries; "  
"not only cunning casts in clay" (In Memoriam).

## THE EARTH VEIL.

The race of plants deserve boundless affection and admiration from us, not only on account of the "infinite wonderfulness there is in vegetation," but because, as Ruskin says, the earth at its surface "ministers to us through a veil of strange intermediate being, which *breathes* but has no voice: *moves* but cannot leave its appointed place: passes through life without consciousness, to death without bitterness: wears the beauty of youth without its passion, and declines to the weakness of age without its regret." "Of their sweet death are sweetest odours made." What is the meaning of it all? The words over Fitzgerald's grave, "It is He that hath made us, and not

we ourselves," express his own philosophy of life, and that of the tentmaker also. Nor must he forget that the Groves were God's first temple, and that, as Tacitus expresses it, "Oracles first spoke in woods and Sacred Groves."

## PLANTS ARE INDUSTRIOUS AND THRIFTY.

The Lilies are types of a great division of green plants. Their raiment is the product of their own industry and activity. They work from sunrise to sunset. Their operations are *not* governed by legislative enactments, restricting their activities within fixed time limits. They work when they can, and they are both diligent and industrious workers, that profit by every blink of sunshine to suck in the sun's rays, to absorb the energy of the sun, and convert it primarily for their own use, and eventually to store up some of it for their offspring.

## THE LEAF SCREEN.

If you—perhaps alone—all the better in congenial company, stroll in the woods in summer, under the shade and protection of the abundant foliage—"with the green leaves whispering overhead"—"in the leafy month of June"—when, as Keats expresses it, "All the birds are faint with the hot sun, and hide in cooling trees," you are conscious of the coolness of the air and enjoy your stroll, or you may, like Tityrus, prefer to recline "*sub tegmine fagi*," under the spreading beech.

The leafy screen overhead absorbs the sun's rays, and uses them to construct remarkable chemical compounds—useful alike to tree, man and beast. As long as the sun's rays or sunlight is available, the living cells containing the green colouring matter called chlorophyll are hard at work.

The sun of the early morn not only turns everything into gold, but wakes up all Nature to life and activity, or, as MILTON expresses it, the sun

"Spreads his orient beams on  
Herb, tree, fruit and flower,  
Glist'ring with dew.

Nevertheless, it is astonishing how little some of us see of the beautiful world around us. Some of us may represent the "Peter Bell" of William Wordsworth. In any case, to Peter,

"A primrose by a river's brim  
A yellow primrose was to him;  
And it was nothing more."

## ROOTS.

Presently I hope to show you something about the marvellous work of those organs of a plant—the roots—which carry on their work in darkness—roots in Ruskin's words, "CLEAVING the strength of rocks or BINDING the transience of the sand," invisible, yet potent parts of the great earth veil.

The roots—pushful, penetrating, persistent explorers of the subterranean world—find part of their food as they grow. Their work, however, is altruistic.

They not only as it were *anchor* the plant, but they absorb water and mineral salts, and send up sap through the stem into the green leaves. We shall see that they perform in addition many other useful functions.

"April sap to topmost tree, that shoots  
New buds to Heaven." ("The Foresters.")

## LEAVES.

Leaves—"the feeders of the plant"—are veritable organic Laboratories where most wonderful chemical transformations are effected. For example, some relatively simple compounds are broken up, the resulting products are rearranged and many new complex chemical substances are formed.

From openings—the BREATHING PORES or stomata—on the surface of leaves—and there are myriads of them—water is given out as water vapour—while from the air, carbonic acid in a continuous stream, is taken in.

In sunlight, green leaves give out oxygen.

In sunlight and darkness alike, green plants give out carbonic acid, as we do, the carbonic acid is the product of their breathing or respiratory activity.

In a warring laboratory, inside the leaf, are formed sugars, starches, and other organic substances, so that at nightfall a leaf contains a store of nutriment—the produce of the labour of the day. During *darkness*, the insoluble starches are converted into soluble sugars, which are carried from the leaf to the stem and other parts of the plant where they are required—for the well-being of the plant itself—for growth, for development, and for the formation of new wood or buds, or flowers, as the case may be.

Next morning, at sunrise, the daily task is begun, and continued until nightfall.

Each Leaf acts as a BUILDER, and, as Ruskin says, "leads a life of endurance, effort, and various success, issuing in various beauty: and it connects itself with the whole previous edifice by one sustaining thread, continuing its appointed piece of work all the way from top to root."

## FOLIAGE.

The foliage—as Ruskin expresses it—“far tossing in entangled fields beneath every ocean wave—clothing with variegated, everlasting films, the peaks of the trackless mountains, or ministering at cottage doors to every gentlest passion and simplest joy of humanity.”

“Where the sun and air are, the leaf must go, whether it be out of order or not.”

“They, the leaves, must keep out of each other’s way that everyone may at once leave its neighbours as much free air pasture as possible, and obtain a relative freedom for itself.”

LEAVES—“that make soft-bed for flowers that soon will take new forms of beauty”—are not only *starch factories* run by sun power, they also are breathing organs and purifiers of the air. They also serve as food for animals and as homes for bird and insect alike. The last of these uses is thus quaintly expressed by Lowell.

LEAF

“There’s never a leaf nor a blade too mean  
To be some happy creature’s palace.”

“The LEAVES form nature’s dress; the flowers are only the JEWELS scattered here and there.”

To Goethe: “FLOWERS are the beautiful hieroglyphics of Nature, with which she indicates how much she loves us.”

What happens to leaves after they have reached the Emeritus stage—worn out in the service?

## THE FALL AND COLOUR OF LEAVES.

“October is the month of painted leaves. Their rich glow now flashes round the world. As fruit and leaves, and the day itself, acquire a bright tint just before they fall, so the year near its ending. October is its sunset sky; November the later twilight.” (Henry D. Thoreau).

Do you recollect the description by Dickens, when introducing, in the story of Martin Chuzzlewit, the immortal Pecksniff, on that wintry night when the “sacred leaves,” taking advantage of the sudden opening of Mr. Pecksniff’s front-door, dashed wildly down his passage, with the wind following close upon them with the result that the wind blew out Miss Pecksniff’s lighted candle, while Mr. Pecksniff himself in the twinkling of an eye lay on his back at the bottom of the steps?

## AUTUMN LEAVES.

Tennyson, in "In Memoriam," speaks of  
 "Autumn laying here and there  
 A fiery finger on the leaves."

"Leaves that redden to the fall."  
 and of  
 "Creepers crimsoning to their pinnacles,  
 As if perpetual sunset linger'd there."

"No more beautiful study can be desired than autumn leaves, beauty of color, beauty of use.

"Their summer work is done. The tree no longer needs them to breathe, and throw out water, and make food. How beautiful is their leavetaking! They clothe their old mother with all the hues of sunset. Then quietly, contentedly, they slip away. Good Mother Nature knows what a burden to the tree they would be, and how they would catch the winter wind, and hold the snow. They have other work to do. They drop down—to die? Oh! No. To cover seeds and plants from the winter's cold. To nestle quietly through the months until in the spring and summer, water and air, the two great workers of the world, with their humble helpers, the worms, turn them into food, from which other plants make new leaves and flowers. Busy, busy leaves! Resting, yet always working, always helping."

Field, meadow, wood, and forest in summer time are clad in a mantle of green. Think of the enormous energy required by plants to produce this soul-refreshing, eye-soothing verdure—and not this alone—but in seed time also, plants respond most liberally to the pristine behest to be fruitful and multiply.

"The grass and herb yielding seed, after its kind, and the tree yielding fruit, whose seed was in itself after its kind."

## MAN A PARASITE.

Though all the requisite operations are conducted in silence, the work is none the less real. With its magical touch the plant converts and transforms non-living into living matter, and from a few simple chemical substances—water, carbonic acid, mineral salts, and compounds of N like ammonia—the green plant builds up starches, sugars, and more complex bodies. The millions of cells that make up the parts of a plant are true secret works. They are the great food producers for man and animal alike.

Man himself is but a parasite, living directly or indirectly on the vegetable kingdom. Verily all flesh is grass.



## FLOWER IN THE CRANNIED WALL.

Be it but a little short-lived flower, or be it one of the great and long-lived monarchs of primeval forests, such as the giant trees of California—the Sequoias or Wellingtonias—the latter name is already a testimony to their comparatively recent discovery, these trees—some of them are over 300 feet in height—or the cedar of Lebanon, or the hysop that is in the wall, or the tiniest moss or lichen that finds a scant existence in the crevice of a rock, or the flower “in the crannied wall,” each and all have sprung from specific spores or seeds.

## LIMITS OF OUR KNOWLEDGE.

Did not Tennyson say of a “Little flower”—

“If I could understand  
What you are, root and all, and all in all,  
I should know what God and man is.”

## HINDOO AND SEED AND TREE.

There is an old Hindoo story of one called Ammi, who said to his son, “Bring me a fruit of that tree and break it open. What is THERE?” The son said, “Some small seeds.” “Break one of them and what do you see?” “Nothing.” “My child,” said Ammi, “where you see nothing there dwells a mighty tree.”

Can indeed anything be truly called small? As Emerson says—

“There are no great and no small  
To the Soul that maketh all:  
And where it cometh all things are,  
And it cometh everywhere.”

## SOWING OF SEED.

“The sowing of seed is the link by which dead mineral matter may be raised up to form a part of the noble vesture of life—by which the grain of sand may become part of a living cell. It is, so to speak, the mediator between the organic and inorganic kingdoms, the clasped hand in which matter and life meet, and by means of which they exchange mutual services. In the process of growth the seed takes up the substances of the soil, imparts to them a higher character, stamps them with the impress of vitality, and converts them to nobler uses. By the development of the seed the wilderness is converted into a garden, the bare, barren soil covered with beautiful and varied forms of life which minister to the wants of higher creatures.”  
—(“The Ministry of Nature,” Macmillan).

## REJUVENESCENCE IN VEGETABLE LIFE.

The vegetable kingdom is the principal workshop of spring — "the wonderful workshop where myriads of vegetable atoms, in brief space, spin the threads to clothe the trees and weave the verdant carpet of the earth. With all its sunshine over land and sea, with all its swelling lands and brooks, spring would be barren and empty without leaves and flowers, as a sky without stars. Leaf and blossom alone give life and freshness to the active scene."

We must dispel the illusion that "the splendour of the new-born vegetable world, which appears so magically in spring, is merely the work of the few days in which it comes so suddenly into view. The labour of rejuvenescence begins earlier in the workshops of vegetable life, and spring merely brings the last steps before our eyes."

The breath of spring only urges to its unfolding that which was prepared long before in silence, that which was reserving and strengthening itself during the evil season of winter. "The greater part of that which unfolds itself in spring, after winter has passed over it, was already formed in the preceeding summer and autumn."

## A SEED.

Begin with a "seed" with its dormant life, which under appropriate conditions of moisture, temperature, and surroundings, wakens into activity and becomes an emblem of life.

"Of all the wonderful things in the universe of God, nothing seems more surprising than the planting of a seed in the black earth, and the result thereof. Take a poppy seed for instance, it lies in your palm, the merest atom of matter, hardly visible, a speck, a pin's point in bulk, but within it is imprisoned a spirit of beauty ineffable, which will break its bonds and emerge from the dark ground and blossom in a splendour so dazzling as to baffle all powers of description. The Genie in the Arabian tale is not half so astonishing."

It is indeed a wonderful story that of a plant, from seed, through root, stem, leaf, and flower, and then to the seed again.

"As wonderful things are hidden away  
In the heart of a little brown seed,  
As ever were found in the fairy net  
Of which children sometimes read.

Over the pretty shining coat  
We sprinkle earth so brown,  
And the sunshine warms its lowly bed,  
And the rain comes pattering down.



Patter, patter, the soft warm rain  
 Knocks at the tiny door,  
 And two little heads come peeping out,  
 Like a story in fairy lore."

" Only a little shrivelled seed,  
 It might be flower, or grass, or weed;  
 Only a box of earth on the edge  
 Of a narrow, dusty window ledge;  
 Only a few scant summer showers,  
 Only a few clear shining hours;  
 That was all.

. . . . Yet God could make  
 Out of these, for a sick child's sake,  
 A blossom—wonder, as fair and sweet  
 As ever broke at an angel's feet."

When "The winter is past, the rain is over and gone, the flowers appear on the earth, the time of the singing birds is come, and the voice of the turtle is heard in the land," is the picturesque language of the "Song of Solomon."

Life exists everywhere, even in the soil itself there is a teeming living population of both plants and animals.

We are still face to face with the mystery of life, and of the transformations whereby dead matter can be changed and become living matter. The mystery of life is still behind the veil.

" Yet I doubt not thro' the ages one increasing purpose runs,  
 And the thoughts of men are widen'd with the process of the  
 suns."  
 ("Locksley Hall.")

